

Innovation in the North American Sawmilling Industry

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Description: An investigation of forms and degree of innovativeness in the North American sawmilling industry

Methods: Mail survey

Data Source: 91 managers and top executives (one respondent per mill)

Key Findings:

1. Mills are most innovative with respect to process innovation, regardless of product orientation (commodity, specialty, custom-made).
2. Innovativeness increased with mill size.
3. Mills that are more market oriented have higher levels of new product development activity and overall innovation.
4. Mills with a commodity product orientation were most competitor-oriented. Mills with a specialty product orientation were most customer-oriented.
5. Upper management and customers were major sources of new product ideas. Machinery manufacturers were also important.
6. Mills with a custom-made product orientation were least intensive in their use of a structured new product development process.
7. A formal new product development process was especially important when developing new-to-the-industry products, rather than new-to-the-company products.
8. Financial analysis/forecasting and brainstorming are among the most broadly used tools for new product development. The most innovative mills showed a higher use of prototypes and in-house product testing.

The North American forest products industry has traditionally maintained a production orientation and a commodity mentality toward its operations. The majority of the industry follows a low-cost strategy with efforts concentrated on increasing fiber utilization. Innovation is one approach for enhancing the competitiveness of the industry.

Innovation

Innovation is the introduction of new products, processes and business systems. North American sawmilling companies have traditionally excelled at process innovation while showing lower levels of product or business systems innovation. To assess industry practices with respect to innovation, U.S. and Canadian softwood sawmills were surveyed to collect data about levels of innovation and market orientation, with mill managers as the target. This

data was collected as part of a larger study covering many sectors of the forest industry.

Market Orientation

This study followed the approach developed by Narver and Slater (1990). They defined market orientation as “the organizational culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business”. They further define market orientation as consisting of three behavioral components: (1) customer orientation, (2) competitor orientation, and (3) interfunctional coordination, which refers to the ability to generate, gather and effectively disseminate and share market knowledge across the business unit.

The survey

The Random Lengths Big Book was used for selecting softwood sawmills to be surveyed. Every other sawmill listed in the directory was selected, excluding mills located in Quebec. The mill manager at each location was targeted.

The concepts measured in the study are outlined in Figure 1. To determine mill product orientation, a product orientation index was used. Respondents were asked to allocate 100 points among the three different categories (1) commodity – designed to meet an industry standard, (2) specialty – designed for a specific sector, e.g. furniture industry, and (3) custom-made – designed for a specific, individual customer. Based on this index, seven mills were determined to have a custom-made product orientation, 22 were determined to have a specialty product orientation, and 62 mills were determined to have a commodity product orientation.

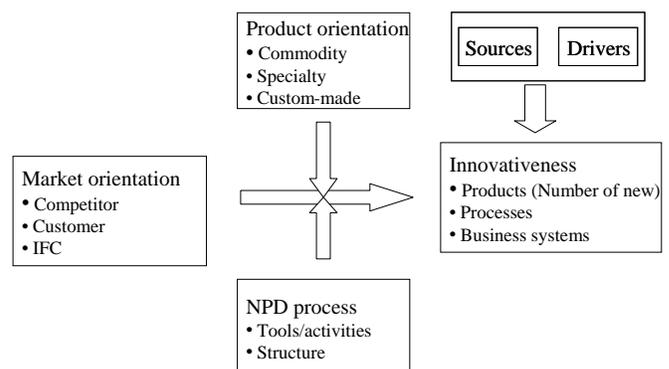


Figure 1: Study framework.

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Results

The average rating for each of the three types of innovation by product orientation are shown in Figure 2. Respondents rated process innovation highest, regardless of product orientation. Mills with a commodity product orientation were most focused on process innovation. For mills with specialty and custom-made product orientations, there was little difference among innovation types.

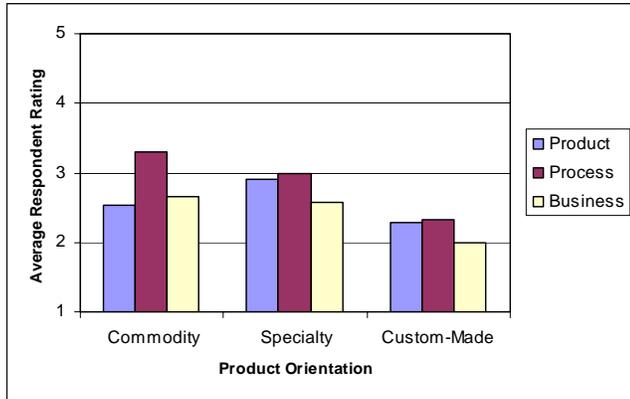


Figure 2: Mean for self-evaluation of three elements of innovation.

Figure 3 shows the self-rated innovativeness and new product development activity by mill size. New product development activity was measured by the number of new products developed by a mill during the last three years. As mill size increased, both the number of new products and the self-rated innovativeness increased.

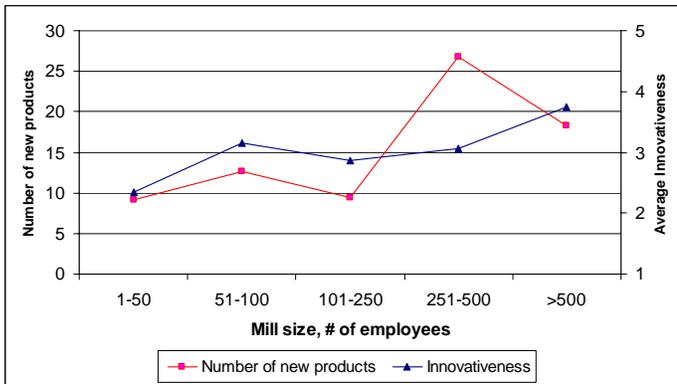


Figure 3: Average self-rated innovativeness and NPD activity by mill size

Table 1 shows the average respondent rating for each of the three components of market orientation by product orientation. It can be seen from the table that mills with a custom-made product orientation generally exhibited a lower market orientation. On the average, there was little difference among the three components of market orientation.

Table 1: Average respondent rating of each component of market orientation by product orientation

Aspect of MO	Commodity	Specialty	Custom-made	Average
Customer	3.4	3.7	3.6	3.5
Competitor	3.6	3.4	2.8	3.5
IFC	3.4	3.5	2.8	3.4

The Pearson's correlation coefficients for each type of innovation and each component of market orientation are displayed in Table 2. Market orientation was positively correlated with new product development activity and overall innovation. This was true for all three types of innovation and average innovation.

When the three components of market orientation were examined by product orientation, mills with a commodity product orientation were determined to be the most competitor oriented. Mills with a specialty product orientation were the most customer oriented.

Table 2: Pearson's correlation coefficients by type of innovation and component of market orientation

Innovation Type	Customer Orientation	Competitor Orientation	Interfunctional Coordination	Market Orientation
Product	0.16	0.25*	0.30**	0.29**
Process	0.10	0.48**	0.33**	0.37**
Bus Sys	0.28**	0.58**	0.43**	0.51**
Average	0.23*	0.54**	0.43**	0.49**

* indicates value significant at 0.05 level ** indicates value significant at 0.01 level

Managerial Implications

The results of this study suggest that having a structured new product development process and using the right tools effectively enhances innovativeness. The same conclusion holds for being market oriented: looking at the competition, listening to the customer, sales force, vendors and employees and having the right internal mechanism to disseminate the information and translate it into innovation. A committed upper management is critical in this process. Results suggest there remains considerable room for development in all three types of innovation. Accordingly, managers should appropriately invest in innovation as well as recognize the elements that are opposing innovation and overcome them. Many mills could benefit from the promotion of all three types of innovation, since each can make a difference in financial performance in periods of high levels of competition and globalization.

With a traditional focus on process efficiency, managers should increasingly look to specialized technology to facilitate development of new products and markets. The ability to utilize high-tech equipment for purposes beyond throughput improvement and fiber recovery will become increasingly important in pursuit of competitive advantage.

Literature Cited

Narver, J.C. and S.F. Slater. 1990. The effect of a market orientation on business profitability. *Journal of Marketing* 54(10). 20-35.